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Revised Claim Set for Non-Provisional Patent application

36 claims total

3 independent claims

33 dependent claims

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1. A thrust reverser system for a jet engine, comprising:
 - a tailpipe having an internal surface in contact with engine internal gas flow, and an outer surface;
 - a pair of clamshell-type doors, each door comprising a substantially flat center panel, an inboard side panel extending from an inboard longitudinal edge of the center panel, and an outboard side panel extending from an outboard longitudinal edge of the center panel;

5 said doors moveable between a stowed position, overlaying the tailpipe and out of contact with internal gas flow, and a deployed position, behind the tailpipe, wherein a majority of the internal gas flow impinges directly upon the door center panels.

10 2. The thrust reverser system of claim 1, wherein the doors contact each other along longitudinal free edges of the side panels when in stowed position, thereby fully surrounding the tailpipe.

3. The thrust reverser system of claim 2, wherein the inboard and outboard side panels are substantially flat.

15 4. The thrust reverser system of claim 3, wherein the side panels extend at right angles from the center panel, such that both doors together in stowed position define a substantially rectangular cross-section.

20 5. The thrust reverser system of claim 3, wherein the angle between the side panels and the center panels is substantially greater than a right angle, such that both doors together in stowed position define a hexagonal cross-section.

25 6. The thrust reverser system of claim 1, further comprising a system of actuators and linkages attached between the tailpipe outer surface and the doors.

7. The thrust reverser system of claim 6, wherein the system of actuators and linkages comprises for each door at least one hydraulic actuator directly linking the tailpipe outer surface to the door.

30 8. The thrust reverser system of claim 7, wherein the at least one hydraulic actuator is positioned within a cavity between the door and the tailpipe outer surface when the door is in stowed position.

9. The thrust reverser system of claim 7, wherein the at least one hydraulic actuator is positioned within a depression in the outer surface of the tailpipe.

35 10. The thrust reverser system of claim 6, wherein the system of actuators and linkages comprises, for each door, a pair of pivotally mounted hydraulic actuators directly linking the tailpipe outer surface to the door, and a pair of pivotally mounted rods directly linking the tailpipe outer surface to the door.

11. The thrust reverser system of claim 6, wherein the system of actuators and linkages comprises, for each door, two pair of pivotally mounted hydraulic actuators directly linking the tailpipe outer surface to the door.

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21. A thrust reverser system for a jet engine, comprising:

a tailpipe having an internal surface in contact with engine internal gas flow, and an outer surface; a pair of reverser doors, each door comprising forward and aft ends, and a substantially flat center

10 panel;

said doors moveable between a stowed position, overlaying the tailpipe, and out of contact with internal gas flow, and a deployed position, disposed behind the tailpipe in abutting relation along their aft ends, and wherein a majority of the internal gas flow impinges directly upon the flat center panels.

15 22. The thrust reverser system of claim 21, wherein the reverser doors further comprise inboard and outboard side panels extending from opposed longitudinal edges of the center panels.

23. The thrust reverser system of claim 22, wherein the side panels are at substantially right angles to the center panels.

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24. The thrust reverser system of claim 22, wherein, in deployed position, the flat center panels are positioned substantially perpendicular to the impinging internal gas flow.

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25. The thrust reverser system of claim 21, further comprising a first pair of hydraulic actuators directly linking each door to the tailpipe outer surface, and configured to move the doors between the stowed and deployed positions.

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26. The thrust reverser system of claim 25, further comprising a second pair of hydraulic actuators directly linking each door to the tailpipe outer surface, and configured to move the doors between the stowed and deployed positions.

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31. A thrust reverser system for a jet engine, comprising:

a tailpipe having an internal surface in contact with engine internal gas flow, and an outer surface; a pair of reverser doors, each door comprising forward and aft ends, and a substantially flat center

portion;

at least one hydraulic actuator directly linking each reverser door to the tailpipe outer surface;

said doors moveable between a stowed position, overlaying the tailpipe, and out of contact with internal gas flow, and a deployed position, disposed behind the tailpipe in abutting relation along their aft ends, and wherein said flat center portion deflects the internal gas flow.

5 32. The thrust reverser system of claim 31, wherein said at least one hydraulic actuator comprises a first pair of hydraulic actuators.

10 33. The thrust reverser system of claim 32, further comprising a second pair of hydraulic actuators directly linking each reverser door to the tailpipe outer surface.

15 34. The thrust reverser system of claim 31, wherein the reverser doors further comprise substantially flat inboard and outboard side panels.

15 35. The thrust reverser system of claim 31, wherein the inboard and outboard side panels extend at a right angle from the door center portions.

36. The thrust reverser system of claim 34, wherein the reverser doors fully surround the tailpipe when in stowed position.